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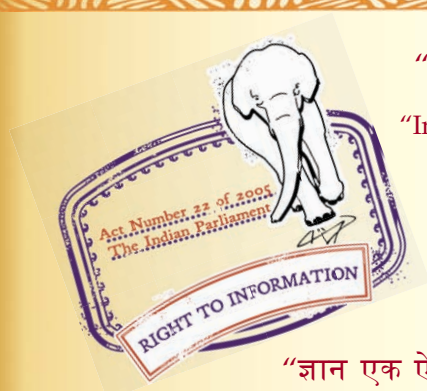
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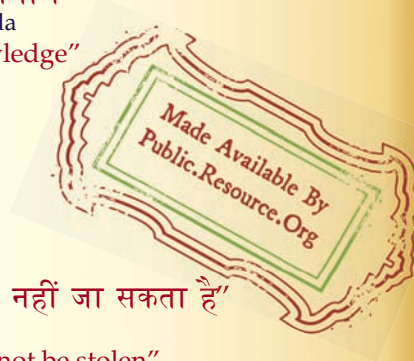
IS 10738-2-5 (1989): Flanges for waveguides, Part 2: Flanges for ordinary rectangular waveguides, Section 5: Flange Type D [LITD 6: Wires, Cables, Waveguides and Accessories]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
तरंगपथको के लिये फ्लैज — विशिष्ट
भाग 2 साधारण आयताकार तरंगपथकों के लिये फ्लैज
अनुभाग 5 फ्लैज टाइप डी

Indian Standard

**FLANGES FOR WAVEGUIDES —
SPECIFICATION**

PART 2 FLANGES FOR ORDINARY RECTANGULAR WAVEGUIDES

Section 5 Flange Type D

UDC 621.372.831.621.372.822

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

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Price Group 4

FOREWORD

This Indian Standard (Part 2/Sec 5) was adopted by the Bureau of Indian Standards on 22 December 1989, after the draft finalized by the Microwave Components and Accessories Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

This standard shall be read in conjunction with IS 10738 (Part 1) : 1983 'Flanges for waveguides: Part 1 General requirements and tests' and IS 10738 (Part 2/Sec 1) : 1990 'Flanges for waveguides: Part 2 Flanges for ordinary rectangular waveguides, Section 1 General'.

Different types of waveguide flanges are being covered in a series of Indian standards consisting of the following individual parts of IS 10738:

- Part 1 General requirements and tests
- Part 2 Flanges for ordinary rectangular waveguides
- Part 3 Flanges for flat rectangular waveguides
- Part 4 Flanges for circular waveguides
- Part 5 Flanges for medium flat rectangular waveguides
- Part 6 Flanges for square waveguides

This Part 2 of IS 10738 series is being issued in 6 sections as follows:

- Section 1 General
- Section 2 Flange Type A
- Section 3 Flange Type B
- Section 4 Flange Type C
- Section 5 Flange Type D
- Section 6 Flange Type E

While preparing this standard assistance has been derived from IEC Pub 154-2 (1980) Flanges for waveguides: Part 2 Relevant specification for flanges for ordinary rectangular waveguides, issued by the International Electrotechnical Commission.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

FLANGES FOR WAVEGUIDES – SPECIFICATION

PART 2 FLANGES FOR ORDINARY RECTANGULAR WAVEGUIDES

Section 5 Flange Type D

1 SCOPE

1.1 This Indian Standard lays down dimensional requirements for flange Type D for ordinary rectangular waveguides.

2 REFERENCES

2.1 The following Indian Standards have been referred to in this standard :

<i>IS No.</i>	<i>Title</i>
IS 4493	Hollow metallic waveguides
IS 10738 (Part 1) : 1983	Flanges for waveguides : Part 1 General requirements and tests
IS 10738 (Part 2/Sec 1) : 1990	Flanges for waveguides : Part 2 Flanges for ordinary rectangular waveguides, Section 1 General

3 CLIMATIC CATEGORY

3.1 Provisions of 3 of IS 10738 (Part 1) : 1983 shall apply.

4 MATERIALS, CONSTRUCTION AND WORKMANSHIP

4.1 Provisions of 4 of IS 10738 (Part 1) : 1983 shall apply.

5 DESIGNATION OF FLANGES FOR WAVEGUIDES

5.1 Provisions of 5 of IS 10738 (Part 1) : 1983 shall apply.

6 MARKING

6.1 Provisions of 6 of IS 10738 (Part 1) : 1983 shall apply.

7 PACKAGING

7.1 Provisions of 7 of IS 10738 (Part 1) : 1983 shall apply.

8 DIMENSIONAL REQUIREMENTS

8.1 The outline and dimensions for both plain unpressurizable and plain pressurizable flanges shall be in accordance with Figures and Table 1.

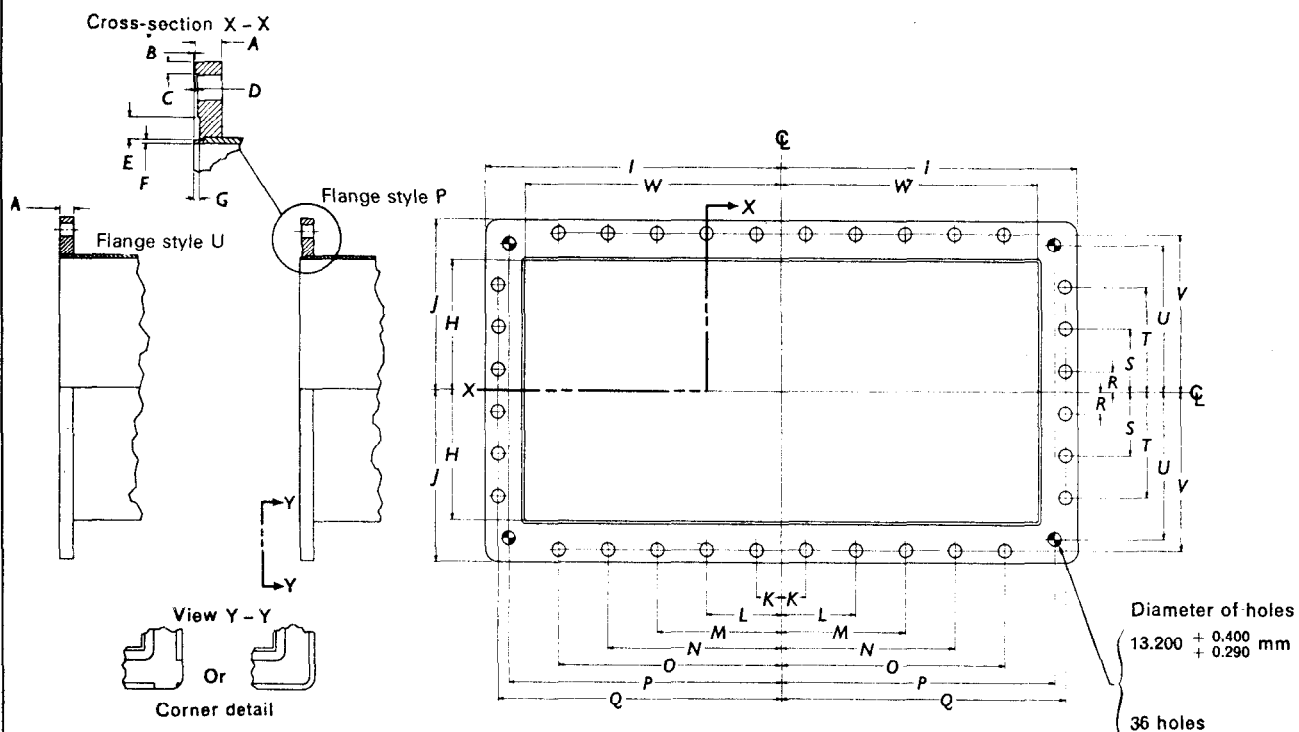
9 TESTS

9.1 Provisions of 10 of IS 10738 (Part 2/Sec 1) : 1990 shall apply.

FLANGE TYPE D

10738 IS – PDR 3 AND UDR 3

FIG. 1



Diameters for Bolts		
	mm	
Shank diameter	12.000	
ISO-fit	h 11	
Escart deviation	Upper	0.000
	Lower	-0.110

NOTES

- 1 The dimensions of the waveguide tubing at the flanges, as shown on the drawing, shall be made to agree to the dimensions and deviations of waveguide tubing.
- 2 This value has been standardized for flanges originally designed to take bolts with a 12.70 mm basic shank diameter. However, clearance and positional deviations for these flanges were so chosen that bolts with 12.70 mm as well as 12 mm can be used without violating the electrical requirements.
- 3 These dimensions are not essential for the mating of two assemblies.

<i>Dimension</i>	<i>A³⁾</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I³⁾</i>	<i>J³⁾</i>	<i>K</i>	<i>L</i>
mm	15.88	0.00	6.35	1.14	For subsequent study			146.05	338.15	192.10	28.35	84.96
± Δ mm	0.40	+0.25 -0.00	0.40	0.64				Note 1	0.40	0.40	0.28	0.28

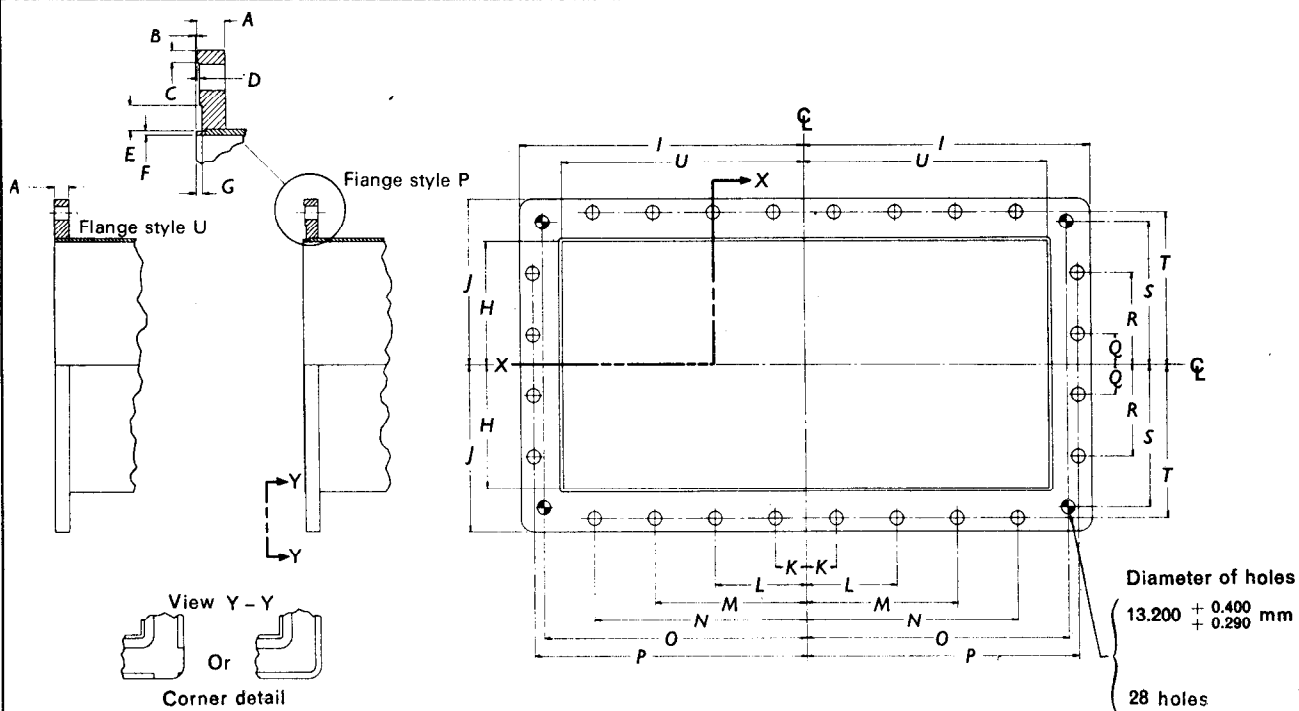
Dimension	M	N	O	P	Q	R	S	T	U	V	W
mm	141.58	198.20	254.81	311.43	323.85	23.62	70.87	118.14	165.38	177.80	292.10
± Δ mm	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	Note 1

First angle projection.

FLANGE TYPE D

10738 IS – PDR 4 AND UDR 4

FIG. 2

*Diameters for Bolts*

		mm
Shank diameter		12.000
ISO-fit		h 11
Escart deviation	Upper	0.000
	Lower	-0.110

NOTES

- 1 The dimensions of the waveguide tubing at the flanges, as shown on the drawing, shall be made to agree to the dimensions and deviations of waveguide tubing.
- 2 This value has been standardized for flanges originally designed to take bolts with a 12.70 mm basic shank diameter. However, clearance and positional deviations for these flanges were so chosen that bolts with 12.70 mm as well as 12 mm can be used without violating the electrical requirements.
- 3 These dimensions are not essential for the mating of two assemblies.

Dimension	A ³⁾	B	C	D	E	F	G	H	I ³⁾	J ³⁾	K	L
mm	15.88	0.00	6.35	1.14	For subsequent study			133.35	312.75	179.40	33.17	99.49
± Δ mm	0.40	+0.25 -0.00	0.40	0.64				Note 1	0.40	0.40	0.28	0.28

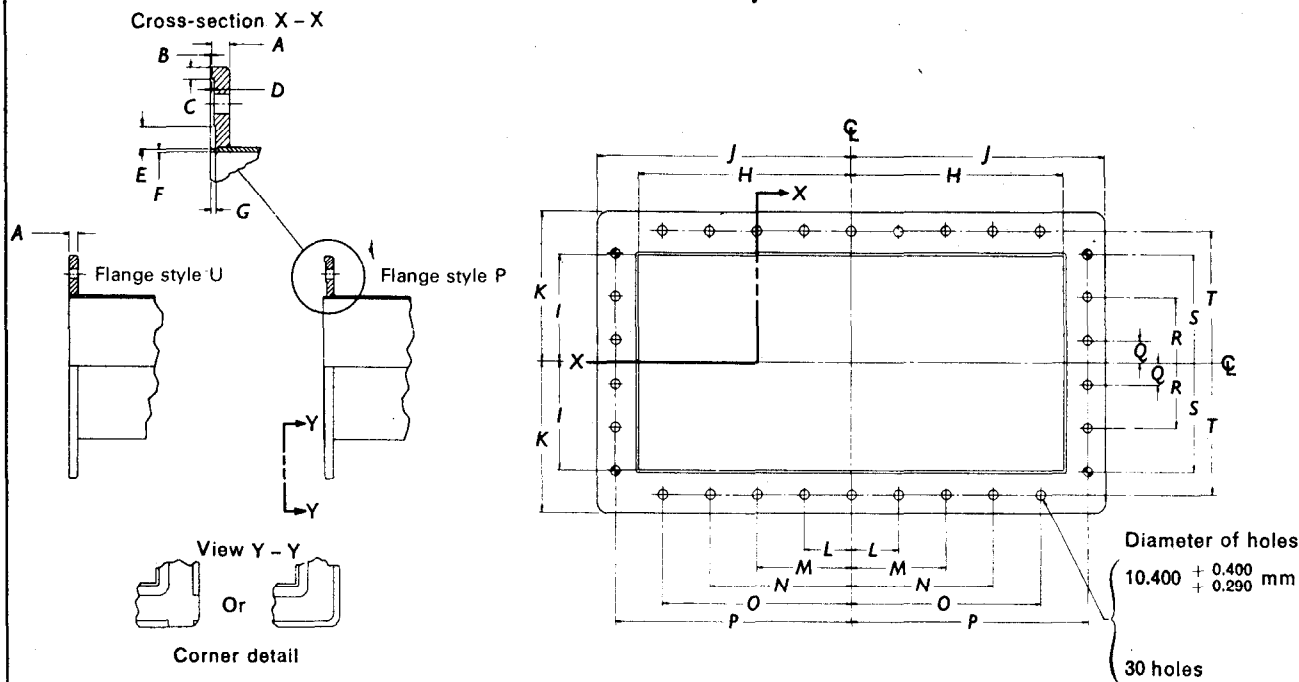
Dimension	M	N	O	P	Q	R	S	T	U
mm	165.81	232.13	287.30	298.45	33.02	99.06	153.95	165.10	266.70
± Δ mm	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	Note 1

First angle projection.

FLANGE TYPE D

10738 IS – PDR 5 AND UDR 5

FIG. 3



Diameters for Bolts		
		mm
Shank diameter		10.000
ISO-fit		h 11
Escart deviation	Upper	0.000
	Lower	-0.090

- NOTES
- 1 The dimensions of the waveguide tubing at the flanges, as shown on the drawing, shall be made to agree to the dimensions and deviations of waveguide tubing.
 - 2 This value has been standardized for flanges originally designed to take bolts with a 12.70 mm basic shank diameter. However, clearance and positional deviations for these flanges were so chosen that bolts with 9.53 mm as well as 10 mm can be used without violating the electrical requirements.
 - 3 These dimensions are not essential for the mating of two assemblies.

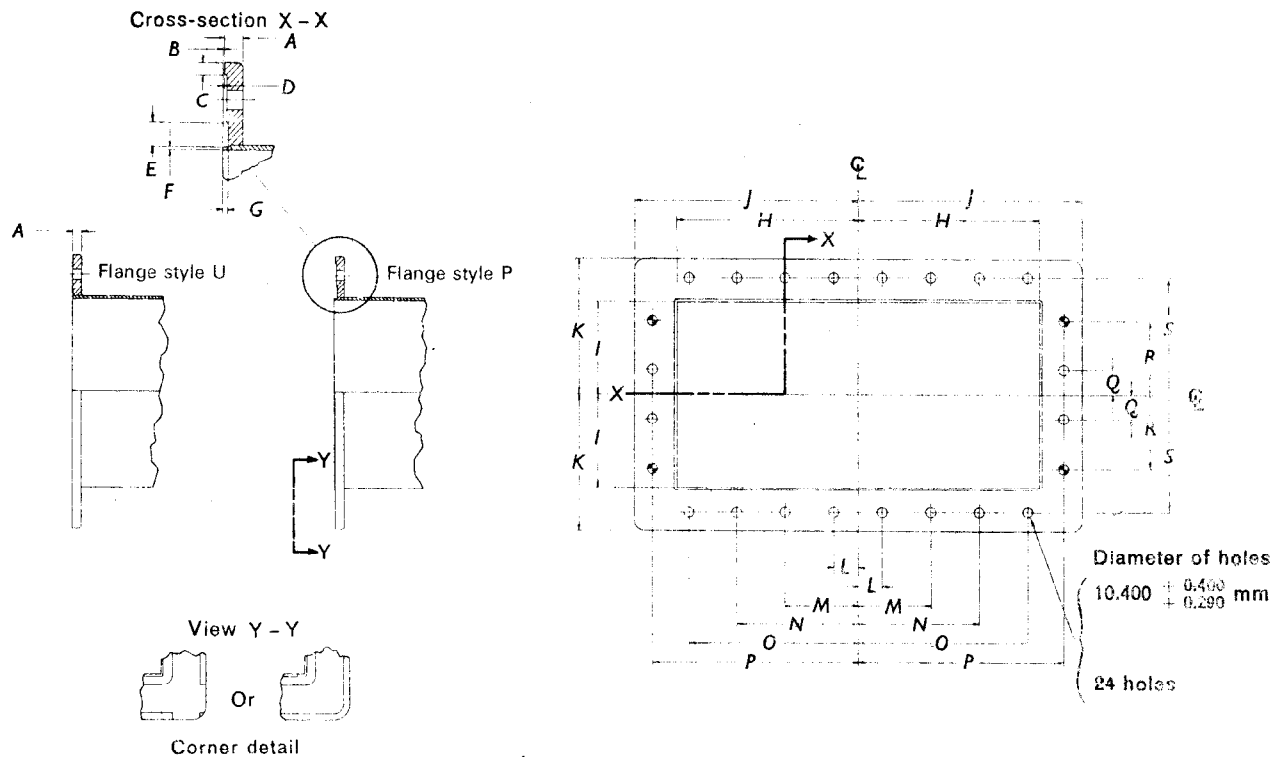
Dimension	A ³⁾	B	C	D	E	F	G	H	I	J ³⁾	K ³⁾	L
mm	9.52	0.00	6.35	1.14	For subsequent study			228.60	114.30	273.05	158.75	50.80
± Δ mm	0.40	+0.25 -0.00	0.40	0.64				Note 1	Note 1	0.40	0.40	0.24

Dimension	M	N	O	P	Q	R	S	T
mm	101.60	152.40	203.20	254.00	23.04	69.06	115.11	139.70
± Δ mm	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24

First angle projection.

FLANGE TYPE D 10738 IS – PDR 6 AND UDR 6

FIG. 4



Diameters for Bolts		
		mm
Shank diameter		10.000
ISO-fit		h 11
Escart deviation	Upper	0.000
	Lower	-0.090

NOTES

1 The dimensions of the waveguide tubing at the flanges, as shown on the drawing, shall be made to agree to the dimensions and deviations of waveguide tubing.

2 This value has been standardized for flanges originally designed to take bolts with a 9.53 mm basic shank diameter. However, clearance and positional deviations for these flanges were so chosen that bolts with 9.53 mm as well as 10 mm can be used without violating the electrical requirements.

3 These dimensions are not essential for the mating of two assemblies.

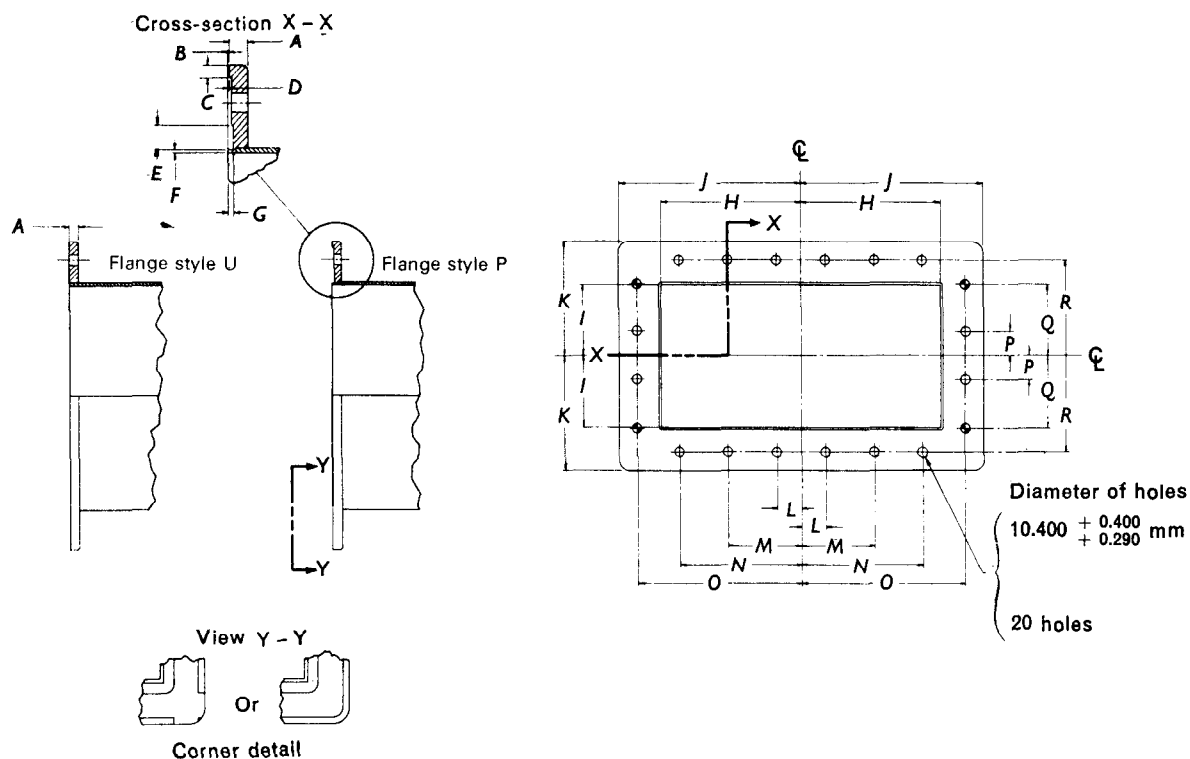
Dimension	A ³⁾	B	C	D	E	F	G	H	I	J ³⁾	K ³⁾	L
mm	9.52	0.00	6.35	1.14	For subsequent study			190.50	95.25	234.95	139.70	25.40
± Δ mm	0.40	+0.25 -0.00	0.40	0.64				Note 1	Note 1	0.40	0.40	0.24

Dimension	M	N	O	P	Q	R	S
mm	76.20	127.00	177.80	215.90	25.40	76.20	120.65
± Δ mm	0.24	0.24	0.24	0.24	0.24	0.24	0.24

First angle projection.

FLANGE TYPE D 10738 IS — PDR 8 AND UDR 8

FIG. 5



NOTES

- 1 The dimensions of the waveguide tubing at the flanges, as shown on the drawing, shall be made to agree to the dimensions and deviations of waveguide tubing.
- 2 This value has been standardized for flanges originally designed to take bolts with a 9.53 mm basic shank diameter. However, clearance and positional deviations for these flanges were so chosen that bolts with 9.53 mm as well as 10 mm can be used without violating the electrical requirements.
- 3 These dimensions are not essential for the mating of two assemblies.

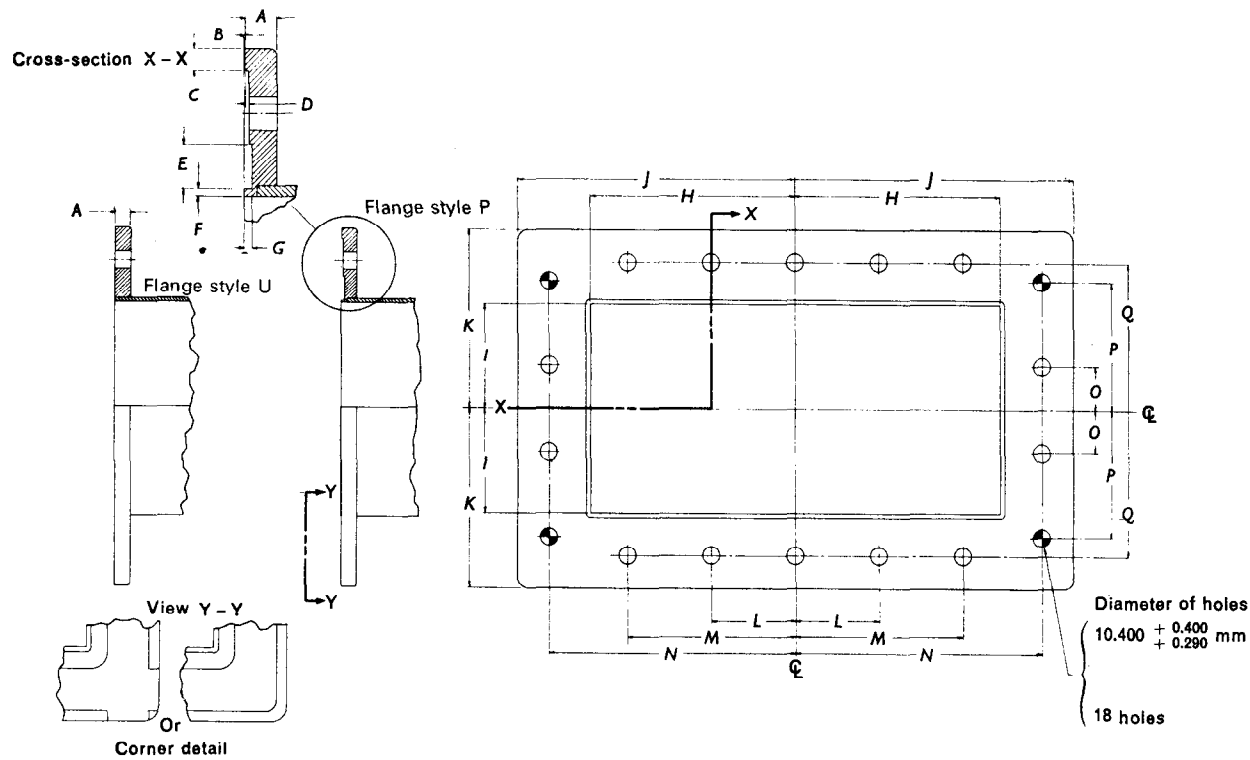
Dimension	A ¹⁾	B	C	D	E	F	G	H	I	J ¹⁾	K ¹⁾	L
mm	9.52	0.00	6.35	1.14	For subsequent study			146.05	73.02	190.50	117.48	25.40
± Δ mm	0.40	+0.25 -0.00	0.40	0.64				Note 1	Note 1	0.40	0.40	0.24

Dimension	M	N	O	P	Q	R
mm	76.20	127.00	171.45	24.61	73.84	98.42
± Δ mm	0.24	0.24	0.24	0.24	0.24	0.24

First angle projection.

FLANGE TYPE D 10738 IS — PDR 9 AND UDR 9

FIG. 6



Diameters for Bolts		
	mm	
Shank diameter	10.000	
ISO-fit	h 11	
Escart deviation	Upper	0.000
	Lower	-0.090

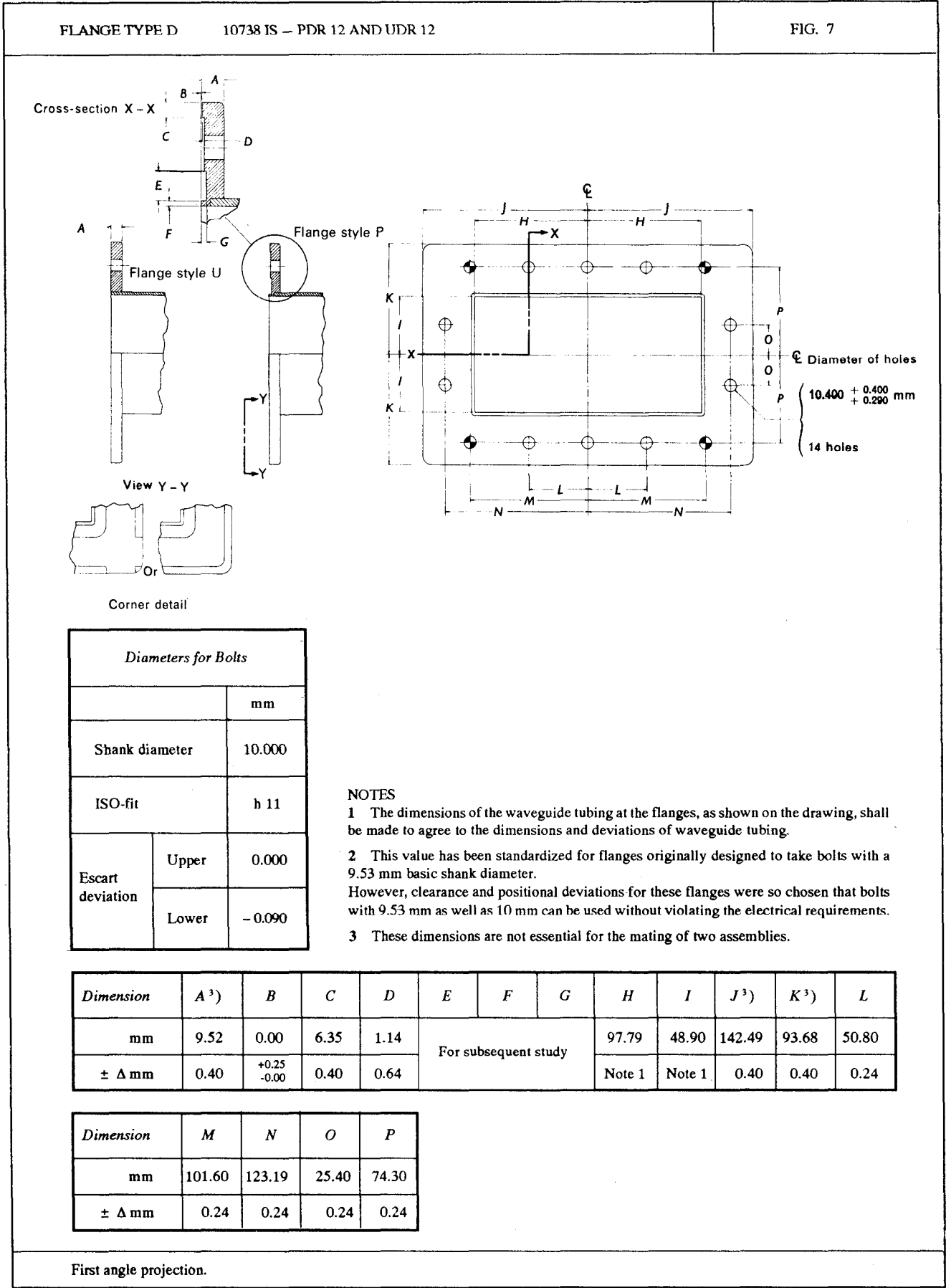
NOTES

- 1 The dimensions of the waveguide tubing at the flanges, as shown on the drawing, shall be made to agree to the dimensions and deviations of waveguide tubing.
- 2 This value has been standardized for flanges originally designed to take bolts with a 9.53 mm basic shank diameter. However, clearance and positional deviations for these flanges were so chosen that bolts with 9.53 mm as well as 10 mm can be used without violating the electrical requirements.
- 3 These dimensions are not essential for the mating of two assemblies.

Dimension	A ³⁾	B	C	D	E	F	G	H	I	J ³⁾	K ³⁾	L
mm	9.52	0.00	6.35	1.14	For subsequent study			123.83	61.93	168.28	106.38	50.80
$\pm \Delta$ mm	0.40	$\begin{smallmatrix} +0.25 \\ -0.00 \end{smallmatrix}$	0.40	0.64				Note 1	Note 1	0.40	0.40	0.24

Dimension	M	N	O	P	Q
mm	101.60	149.22	25.40	76.20	87.30
$\pm \Delta$ mm	0.24	0.24	0.24	0.24	0.24

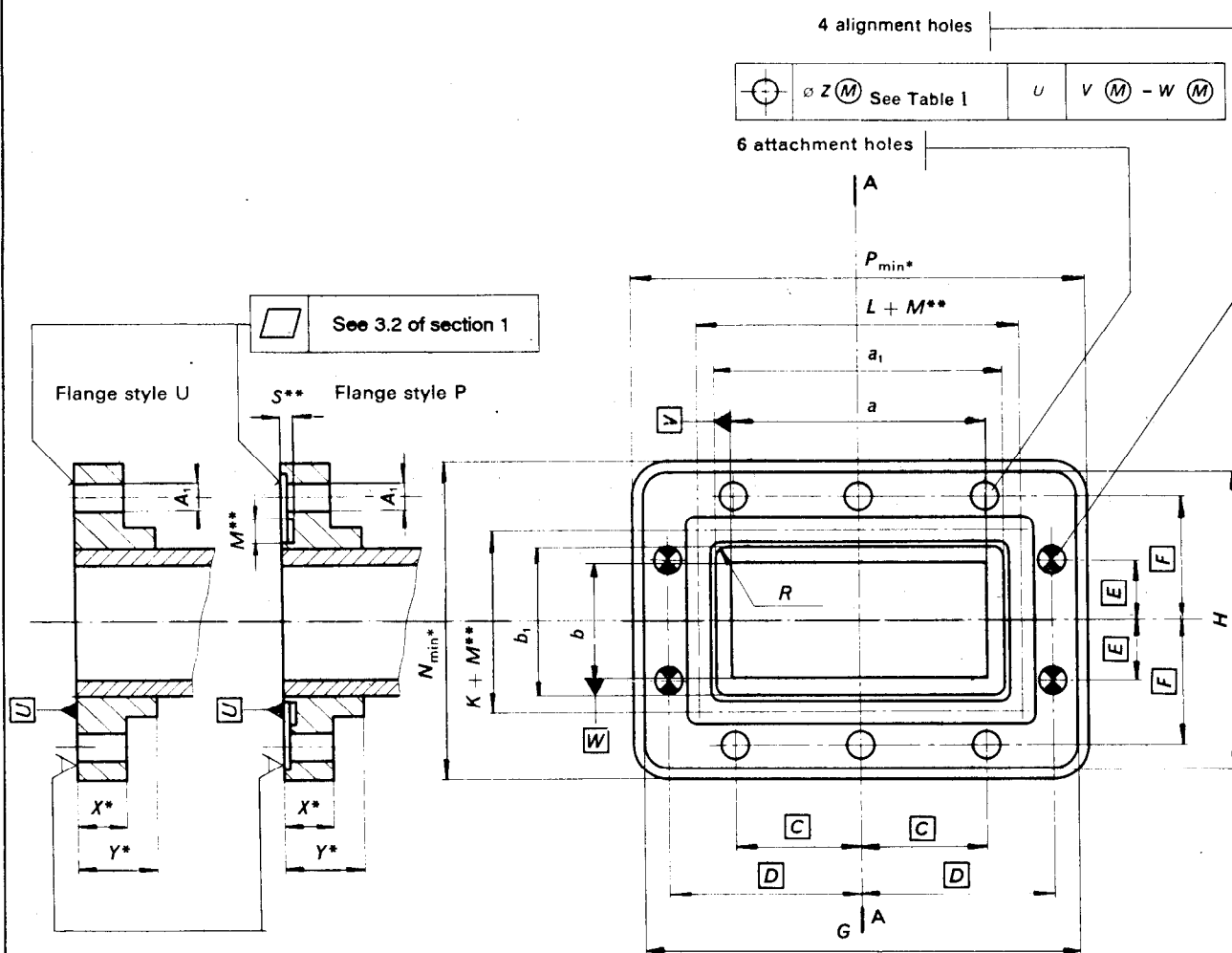
First angle projection.



FLANGE TYPE D

10738 IS — PDR 14-40

FIG. 8



Cross-section A - A

Front view

*These dimensions are not essential for the mating of two assemblies.

**The details of the gasket groove dimensions are for subsequent study, therefore the dimensions are provisionally given for guidance.

The depth of the groove shall be so chosen that there can be one gasket in each flange.

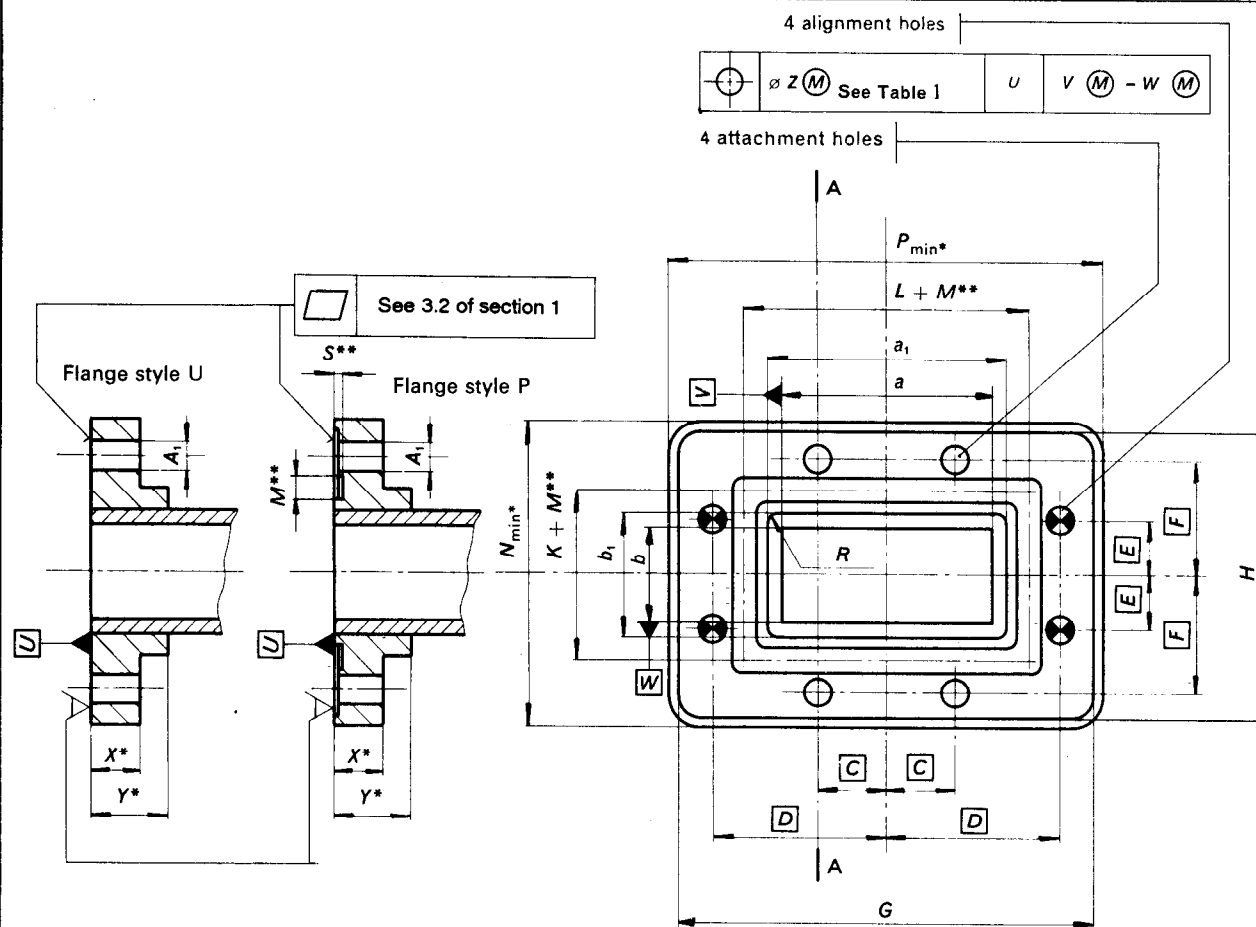
NOTE — It is permissible for the outer rim either to be continuous or to be produced by making four straight milling cuts, thereby, removing the outer rim at the flange corners.

First angle projection.

FLANGE TYPE D

10738 IS — PDR 48-100

FIG. 9



Cross-section A - A

Front view

*These dimensions are not essential for the mating of two assemblies.

**The details of the gasket groove dimensions are for subsequent study, therefore the dimensions are provisionally given for guidance.

The depth of the groove shall be so chosen that there can be one gasket in each flange.

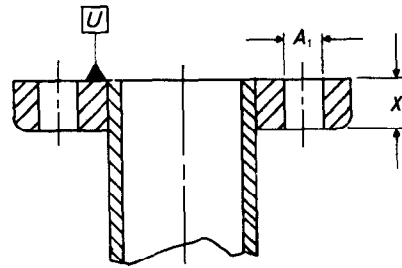
NOTE — It is permissible for the outer rim either to be continuous or to be produced by making four straight milling cuts, thereby, removing the outer rim at the flange corners.

First angle projection.

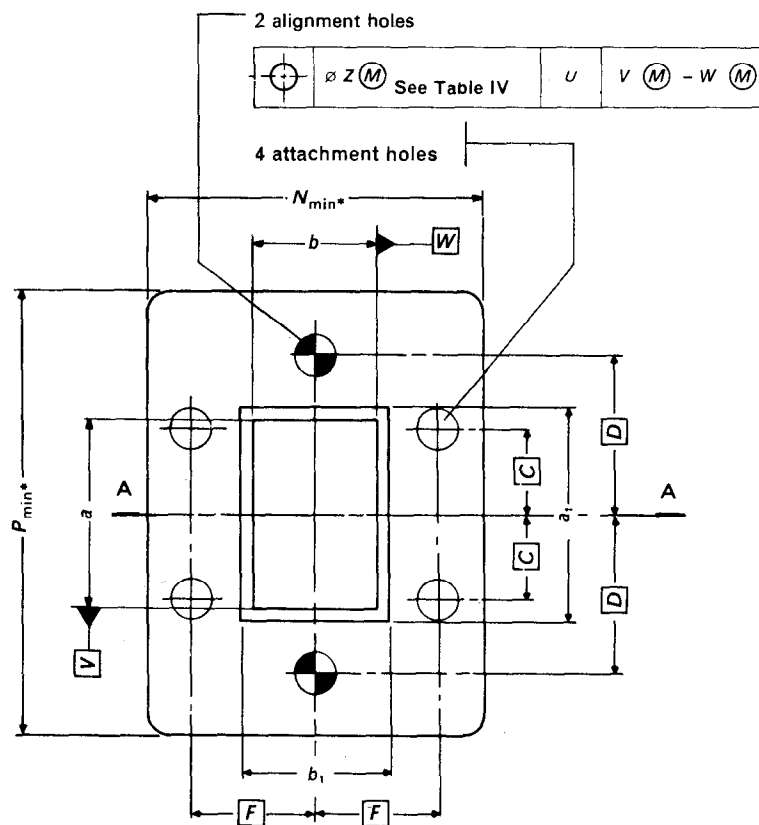
FLANGE TYPE D

10738 IS – UDR 120 – UDR 180

FIG. 10



Cross-section A – A



Front view

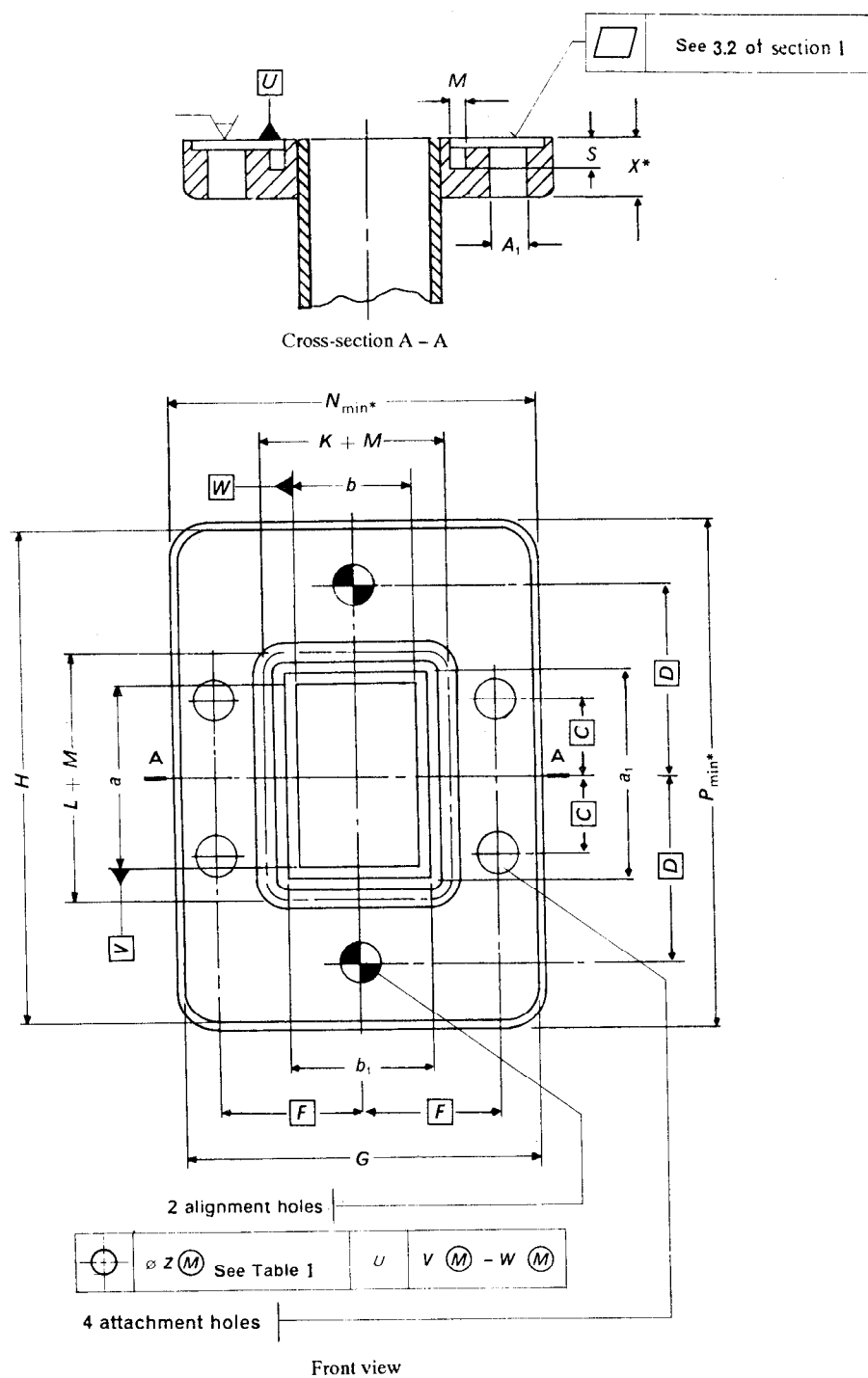
These dimensions are not essential for the mating of two assemblies.

First angle projection.

FLANGE TYPE D

10738 IS — PDR 120 — PDR 180

FIG. 11



*These dimensions are not essential for the mating of two assemblies.

The depth of the groove shall be so chosen that there can be one gasket in each flange.

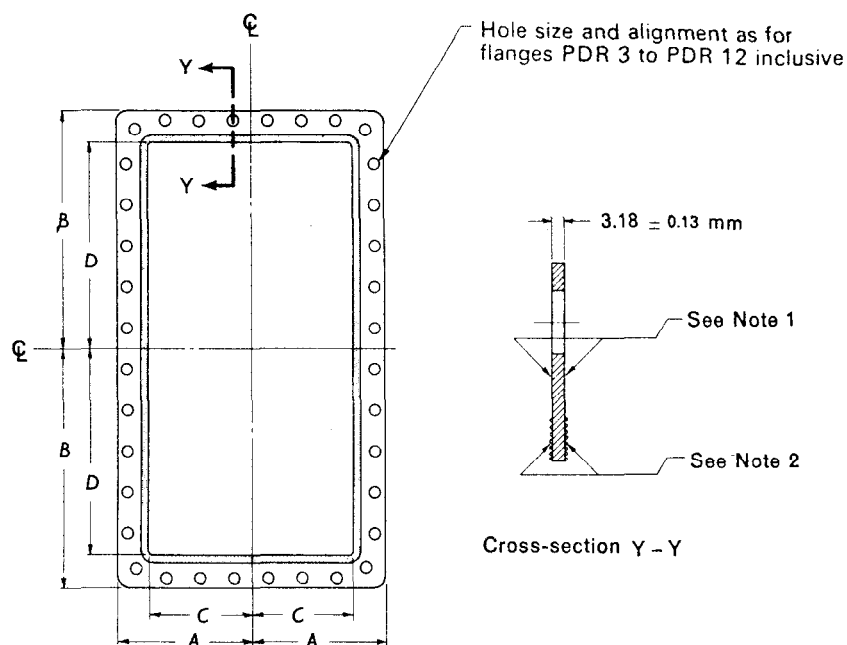
NOTE 1 — The corner radius of the centre line of the gasket groove is 3.3 mm.

NOTE 2 — It is permissible for the outer rim either to be continuous or to be produced by making four straight milling cuts, thereby removing the outer rim at the flange corners.

First angle projection.

RECOMMENDED GASKETS FOR FLANGES WITHOUT GASKET GROOVES

FIG. 12



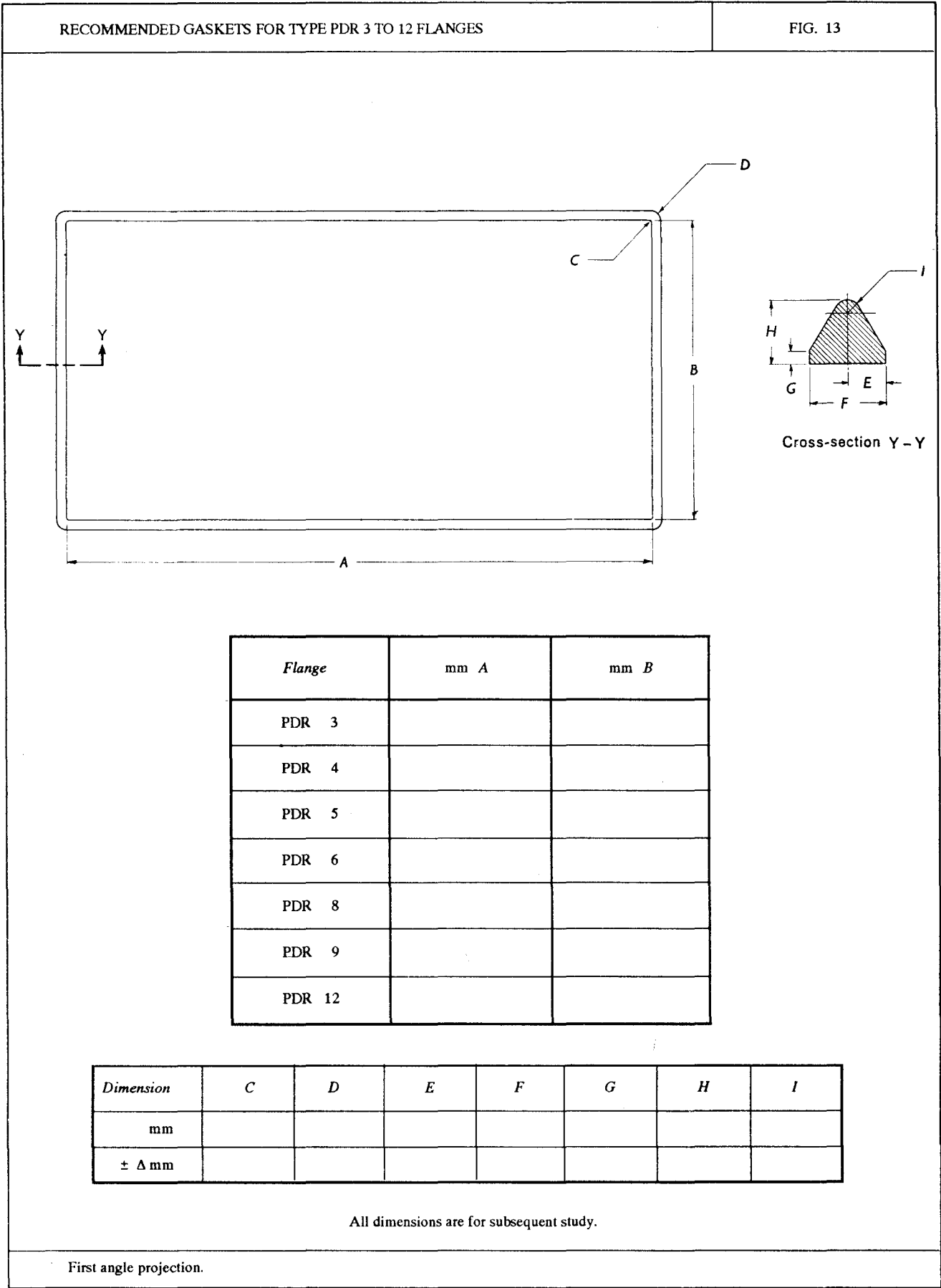
NOTES

- 1 These surfaces to incorporate pressure seals.
- 2 These surfaces to include raised electrical contact areas. These areas must start at inside dimensions of waveguide.
- 3 The inside dimensions of the waveguide tubing at the flanges, as shown on the drawings, shall be made to agree to the dimensions and deviations of waveguide tubing.

Flange	mm A	mm B	mm C	mm D
UDR 3	192.08 \pm 0.40	338.12 \pm 0.40	146.05	292.10
UDR 4	179.38 \pm 0.40	312.72 \pm 0.40	133.35	266.70
UDR 5	158.75 \pm 0.40	273.05 \pm 0.40	114.30	228.60
UDR 6	139.70 \pm 0.40	234.95 \pm 0.40	95.25	190.50
UDR 8	117.48 \pm 0.40	190.50 \pm 0.40	73.02	146.05
UDR 9	106.38 \pm 0.40	168.28 \pm 0.40	61.92	123.82
UDR 12	93.68 \pm 0.40	142.47 \pm 0.40	48.90	97.79

See Note 3

First angle projection.



* Figure 10 for flanges without gasket grooves and Figure 11 for flanges with gasket grooves

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